Amendments t the Specificati n:

Please replace the paragraph, beginning at page 1, line 9, with the following rewritten paragraph:

The present invention relates to a field of simultaneous transmission and reception of a signal in a communication system having a transmitter and a receiver such as a portable telephone~~,~~. ~~and i~~In particular, the invention relates to a radio communication apparatus in the communication system using a modulation method having an envelope component such as a CDMA method.

Please replace the paragraph, beginning at page 1, line 17, with the following rewritten paragraph:

In recent years, ~~a~~ cellular radio communication systems ~~is spreading~~have been rapidly increasing due to ~~increasing~~ the pressing needs for mobile communication and development of communication technology.

Please replace the paragraph, beginning at page 1, line 20, with the following rewritten paragraph:

~~A~~ An example of a radio communication apparatus used in the cellular radio communication system is ~~constituted~~ as shown in a block diagram in FIG. 31 ~~for instance~~. In this drawing, reference numeral 1801 denotes an antenna, 1802 denotes a duplexer (antenna sharing apparatus), 1803 denotes a receiving circuit, and 1804 denotes a transmitting circuit.

Please replace the paragraph, beginning at page 2, line 1, with the following rewritten paragraph:

In the radio communication apparatus shown in FIG. 31, a radio frequency signal transmitted from a base station is received by ~~the~~ antenna 1801 and is ~~then~~ inputted via the duplexer 1802 to the receiving circuit 1803~~,~~. In receiving circuit 1803 the signal is ~~where it is~~ high-frequency-amplified~~,~~ ~~and has~~ unnecessary waves outside a receiving band are eliminated and the signal is then converted into an intermediate-frequency signal. ~~so that the~~ The intermediate-frequency signal is demodulated and converted into a base band signal. ~~It is also constituted so that~~

~~predetermined~~ Predetermined signal processing is performed to a transmitting base band signal which is ~~and~~ then ~~it is~~ inputted to ~~the~~ a transmitting circuit 1804~~,~~. ~~where a~~ A carrier wave signal is modulated so that the modulated carrier wave signal is converted into a radio frequency and amplified to a predetermined sending power to be sent via the duplexer 1802 from the antenna 1801 to the base station ~~via the duplexer 1802~~.

Please replace the paragraph, beginning at page 2, line 17, with the following rewritten paragraph:

~~Incidentally, the~~ The receiving circuit 1803 uses a low-noise amplifier as a high-frequency amplifier. In the case where ~~its own~~the transmitting signal leak is not completely

attenuated by the duplexer it is inputted to the low-noise amplifier~~,~~. ~~the~~ The following three factors cause deterioration of reception ~~respectively~~.

Please replace the paragraph, beginning at page 6, line 15, with the following rewritten paragraph:

As for the above described radio communication apparatus in the past, however, it is necessary to finish switching to a low distortion mode before a transmitting circuit operates on simultaneous transmission and reception and maintain the low distortion mode until finishing the simultaneous transmission and reception. For that reason, standby time performance is little improved ~~only a little~~ in the case of frequently switching transmission on and off. Current consumption of a control circuit ~~of~~ for switching the modes also increases.

Please replace the paragraph, beginning at page 29, line 6, with the following rewritten paragraph:

As for the radio communication apparatus shown in FIG. 1, a radio frequency signal transmitted from the base station is received by the antenna 101 and is then inputted to the receiving circuit 103 via the duplexer 102 as with the conventional examples, where it is high-frequency-amplified and has unnecessary waves outside a receiving band eliminated and is then converted into an intermediate-frequency signal so that the received intermediate-frequency signal is demodulated and converted into a base band signal. ~~It is also constituted so that~~ In addition, predetermined signal processing is performed to a transmitting base band signal and then it is inputted to the transmitting circuit 104, where a carrier wave signal is modulated. ~~so that the~~ The modulated carrier wave signal is converted into a radio frequency and amplified to predetermined sending power to be sent from the antenna 101 to the base station via the duplexer 102. A part of the transmitting signal inputted to the duplexer 102 leaks to the receiving circuit 103.

Please replace the paragraph, beginning at page 29, line 24, with the following rewritten paragraph:

Operation of the radio communication apparatus according to the first embodiment of the present invention will be described further in detail by using FIG. 2. A desired receiving signal received by the antenna 101 is inputted as a single-phase signal to the duplexer 102, and the inputted single-phase signal is converted into the differential signal and is inputted to the receiving circuit 103. On the other hand, the transmitting signal outputted from the transmitting circuit 104 is outputted as the single-phase signal from the duplexer 102 to the antenna 101, and a part of it leaks from the duplexer 102 to the receiving circuit 103. This transmitting signal leak is inputted as an in-phase signal to the receiving circuit 103. Here, a circuit configuration of a high common mode rejection ratio (CMRR) is used as the receiving circuit 103, and in particular as a low-noise amplifier 105 as an example of the amplifier of the present invention, an inter-stage filter 106 as an example of the filter of the present invention and a down mixer 107. Consequently, it is possible to reduce ~~a~~ gain of the transmitting signal leak which is the in-phase signal compared to the gain of the receiving signal as the differential signal in the low-noise amplifier 105 and down mixer 107 of the receiving circuit 103. As described above, the inter-stage filter 106 selectively passes a desired differential wave and selectively suppresses an in-phase jammer. For this reason, it is possible to significantly attenuate the transmitting signal leak which is the in-phase signal compared to a single-phase

(one input and one output) filter of the same size without a distinction between in-phase and differential.

Please replace the paragraph, beginning at page 32, line 7, with the following rewritten paragraph:

In the case where the common mode rejection ratio of the low-noise amplifier 105 and the down mixer 107 is sufficiently high in the receiving circuit 103, it may be a configuration without using the inter-stage filter 106. In this case, the inter-stage filter 106 which is difficult to ~~render~~ provide as an IC is not used, and so it becomes easier to ~~render~~ provide radio ICs as one chip so as to allow miniaturization of the radio portion. This configuration is especially effective in the case of a direct conversion method.

Please replace the paragraph, beginning at page 32, line 17, with the following rewritten paragraph:

In FIG. 3, a phase shifter 2901+ ~~is corresponding~~ corresponds to a first phase shifter of the present invention, a phase shifter 2901- ~~is corresponding~~ corresponds to a second phase shifter of the present invention, a phase shifter 2902+ ~~is corresponding~~ corresponds to a third phase shifter of the present invention, a phase shifter 2902- ~~is corresponding~~ corresponds to a fourth phase shifter of the present invention, a phase shifter 2903+ ~~is corresponding~~ corresponds to a fifth phase shifter of the present invention, and a phase shifter 2903- ~~is corresponding~~ corresponds to a sixth phase shifter of the present invention.

Please replace the paragraph, beginning at page 37, line 22, with the following rewritten paragraph:

FIGS. 6(a)-6(b) shows simulation results of a mix mode S parameter of the low-noise amplifier 105. The inductors 303+ and 303- are at 1nH, and the inductor 304 is at 8nH. And the input nodes and output nodes have a matching circuit connected thereto so that S parameters Sdd 11 and Sdd 22 for the differential signals become 100Ω at 2.15 GHz. As can be seen in FIG.6 (a), Scc 11 becomes a mismatch if matched with Sdd 11. It can also be seen in FIG.6 (b) that Scc 21 is lower than Sdd 21 by 15 dB, that is, the common mode rejection ratio is 15 dB.

Please replace the paragraph, beginning at page 47, line 15, with the following rewritten paragraph:

The phase delay phase shift circuit 1001 is comprising a capacitor 1011 as an example of a fifth capacitor in parallel connection and an inductor 1012 as an example of a sixth inductance in series connection. And the phase lead phase shift circuit 1002 is comprising an inductor ~~1014~~ 1013 as an example of a seventh inductor in parallel connection and a capacitor 1014 as an example of a sixth capacitor in series connection. The filter circuit 1003+ is comprising a capacitor 1015+ and an inductor 1016+ in parallel connection, a capacitor 1017+ in series connection, and a capacitor 1018+ and an inductor 1019+ in parallel connection. The filter circuit 1003- is also comprising likewise. The filter circuits 1003+ and 1003- are band pass filters of passing the signals in the frequency band of the receiving signals. In this case, the signals in the frequency band of the transmitting signals are attenuated, which is not a problem because the transmitting signal leak is originally the jammer to be preferably suppressed.

Please replace the paragraph, beginning at page 52, line 24, with the following rewritten paragraph:

Thus, the radio communication apparatus shown in FIG. 13 uses the circuit configuration in which the receiving signal is inputted as the differential signal to the receiving circuit 103 and the transmitting signal leak is inputted as the in-phase signal to the receiving circuit 103 and the circuit of a high common mode rejection ratio is used as the receiving circuit 103 so as to reduce the deterioration of the reception due to the noise from the transmitting circuit 204. Thus, it is thereby possible to reduce the attenuation amount of the frequency band of the receiving signals from the transmitting circuit ~~104~~ 204 to the antennas 1101+ and 1101- in the duplexer 1102 and consequently reduce the size of the duplexer 1102.

Please replace the paragraph, beginning at page 53, line 21, with the following rewritten paragraph:

FIGS. 14(a)-14(c) shows configuration examples of the antennas 1101+ and 1101-. The following antennas 1101+ and 1101- show the examples constituted as patch antennas having two polarized waves.

Please replace the paragraph, beginning at page 54, line 21, with the following rewritten paragraph:

Next, the operation of the antenna apparatus of the present invention will be described further in detail by using FIGS. ~~14B~~ 14(b) and ~~14C~~14(c).

Please replace the paragraph, beginning at page 62, line 3, with the following rewritten paragraph:

The radio communication apparatus according to the fourth embodiment of the present invention has noise in the frequency band of the receiving signals outputted from the transmitting circuit ~~104~~ 204 inputted as the in-phase signals to the receiving circuit 103. For that reason, it is possible to reduce the gain of the transmitting signal leak as the in-phase signal compared to the gain of the receiving signal as the differential signal so as to reduce the deterioration of the reception due to the noise from the transmitting circuit ~~104~~204.

Please replace the paragraph, beginning at page 62, line 12, with the following rewritten paragraph:

Thus, the radio communication apparatus shown in FIG. 17 uses the circuit configuration in which the receiving signal is inputted as the differential signal to the receiving circuit 103 and the transmitting signal leak is inputted as the in-phase signal to the receiving circuit 103 so that the circuit of a high common mode rejection ratio is used as the receiving circuit 103 so as to reduce the deterioration of the reception due to the noise from the transmitting circuit ~~104~~204. Thus, it is thereby possible to reduce the attenuation amount of the frequency band of the receiving signals from the transmitting circuit ~~104~~ 204 to the antennas 1401+ and 1401- in the duplexer 1402 and consequently reduce the size of the duplexer 1402.

Please replace the paragraph, beginning at page 63, line 23, with the following rewritten paragraph:

Next, the operation of the antenna apparatus of the present invention will be described further in detail by using FIGS. ~~18B~~ 18(b) and ~~18C~~18(c).

Please replace the paragraph, beginning at page 64, line 17, with the following rewritten paragraph:

FIG.18 (c) shows the operation of the antennas 1401+ and 1401- on transmission. The in-phase transmitting signals are inputted to the feeding points 1502+ and 1502- from the transmitting circuit ~~104~~ 204 and the duplexer ~~1102~~ 1402 via the feeder lines 1503+ and 1503-. In this case, the antenna elements 1501+ and 1501- are excited in-phase. The transmitting signals are sent from the positions of the feeding points 1502+ and 1502- in a polarized wave vertical to the direction in which the antenna elements 1501+ and 1501- are in line. On the other hand, the polarized waves which are horizontal to the direction in which the antenna elements 1501+ and 1501- are in line are mutually cancelled. The first and third feeding points of the present invention are corresponding to the feeding point 1502- as an example, and the second and fourth feeding points of the present invention are corresponding to the feeding point 1502+ as an example.

Please replace the paragraph, beginning at page 65, line 21, with the following rewritten paragraph:

In FIGS. ~~19B~~ 19(b) and ~~19C~~19(c), the receiving signals are excited almost vertically to the direction in which the antenna elements 1501+ and 1501- are in line. The receiving signals of the antenna element 1501- are excited in an opposite direction to the receiving signals of the antenna element 1501+. The transmitting signals are excited almost horizontally to the direction in which the antenna elements 1501+ and 1501- are in line. The transmitting signals of the antenna element 1501- are excited in the same direction as the transmitting signals of the antenna element 1501+.

Please replace the paragraph, beginning at page 68, line 12, with the following rewritten paragraph:

Thus, a single-phase receiving signal received by the antenna 3301 is inputted as the single-phase signal to the receiving circuit 3303. The differential transmitting signal outputted from the transmitting circuit 3304 is also inputted as the single-phase signal to the antenna 3301. Furthermore, the differential transmitting signal outputted from the transmitting circuit 3304 is cancelled before being inputted to the receiving circuit ~~1603~~3303.

Please replace the paragraph, beginning at page 88, line 16, with the following rewritten paragraph:

As for the duplexer in FIGS. 29, ~~30A~~ 30(a) and ~~30B~~30(b), in the case of connecting it to the antennas shown in FIG. 18, the configuration in which Ptxout+ and Pxrin+, Ptxout- and Pxrin- are connected respectively should be used.